

We claim:

1 1. A PDC insert comprising:

2 a. a plug section;

3 b. a pedestal section atop the plug section; and

4 c. a step between the plug section and the pedestal section.

1 2. The insert of claim 1, wherein the insert defines an axis, and wherein the pedestal
2 section has a circular cross section perpendicular to the axis.

1 3. The insert of claim 2, wherein the insert defines an axis, and wherein the pedestal
2 section has a circular cross section perpendicular to the axis.

1 4. The insert of claim 1, further comprising a plug shoulder between the plug and the
2 step, and wherein the plug shoulder is covered with PDC.

1 5. The insert of claim 1, wherein the pedestal has a top and a sidewall, and further
2 comprising a pedestal shoulder between the pedestal top and sidewall, and wherein the
3 pedestal shoulder is covered with PDC.

1 6. The insert of claim 1, further comprising:

2 a. a plug shoulder between the plug and the step, and wherein the plug
3 shoulder is covered with PDC; and

4 b. wherein the pedestal has a top and a sidewall, and further comprising a
5 pedestal shoulder between the pedestal top and sidewall, and wherein the
6 pedestal shoulder is covered with PDC.

1 7. The insert of claim 6, wherein each of the plug shoulder and the pedestal shoulder
2 defines a cutting surface for cutting down hole formation.

8. The insert of claim 5, wherein the sidewall is slanted.

1 9. A PDC insert comprising:

2 a. a plug section;

3 b. a pedestal section atop the plug section, and wherein the pedestal section
4 has a top and a side wall, the side wall having a frustoconical bevel surface
5 thereon; and

6 c. a step between the plug section and the pedestal section.

1 10. The insert of claim 9, further comprising a first convex curved surface on the side
2 wall above the frustoconical bevel surface and a second convex curved surface on the
3 side wall below the frustoconical bevel surface.

1 11. The insert of claim 9, wherein the insert defines an axis and further wherein the
2 insert defines a back rake angle, and further wherein the bevel defines an angle to the axis
3 approximately equal to the back rake angle.

12. A PDC insert comprising:

- a. a plug section;
- b. a pedestal section atop the plug section and having a circular, flat top and a flat bevel surface forming a chord across the top; and
- c. a step between the plug section and the pedestal section

1 13. The insert of claim 12, wherein the insert defines an axis and further wherein the
2 insert defines a back rake angle, and further wherein the flat bevel surface defines an
3 angle to the axis approximately equal to the back rake angle.